

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P#

Luminaire Tested: **FLDSQ4C15D010 FEU4C159035 F4LC-DFSSQ-MW**

Issue Date: 12/13/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P#
 Test Lab: INNOVATION CENTER
 Issue Date: 12/13/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: FAIL-SAFE
 Catalog Number: FLDSQ4C15D010 FEU4C159035 F4LC-DFSSQ-MW
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

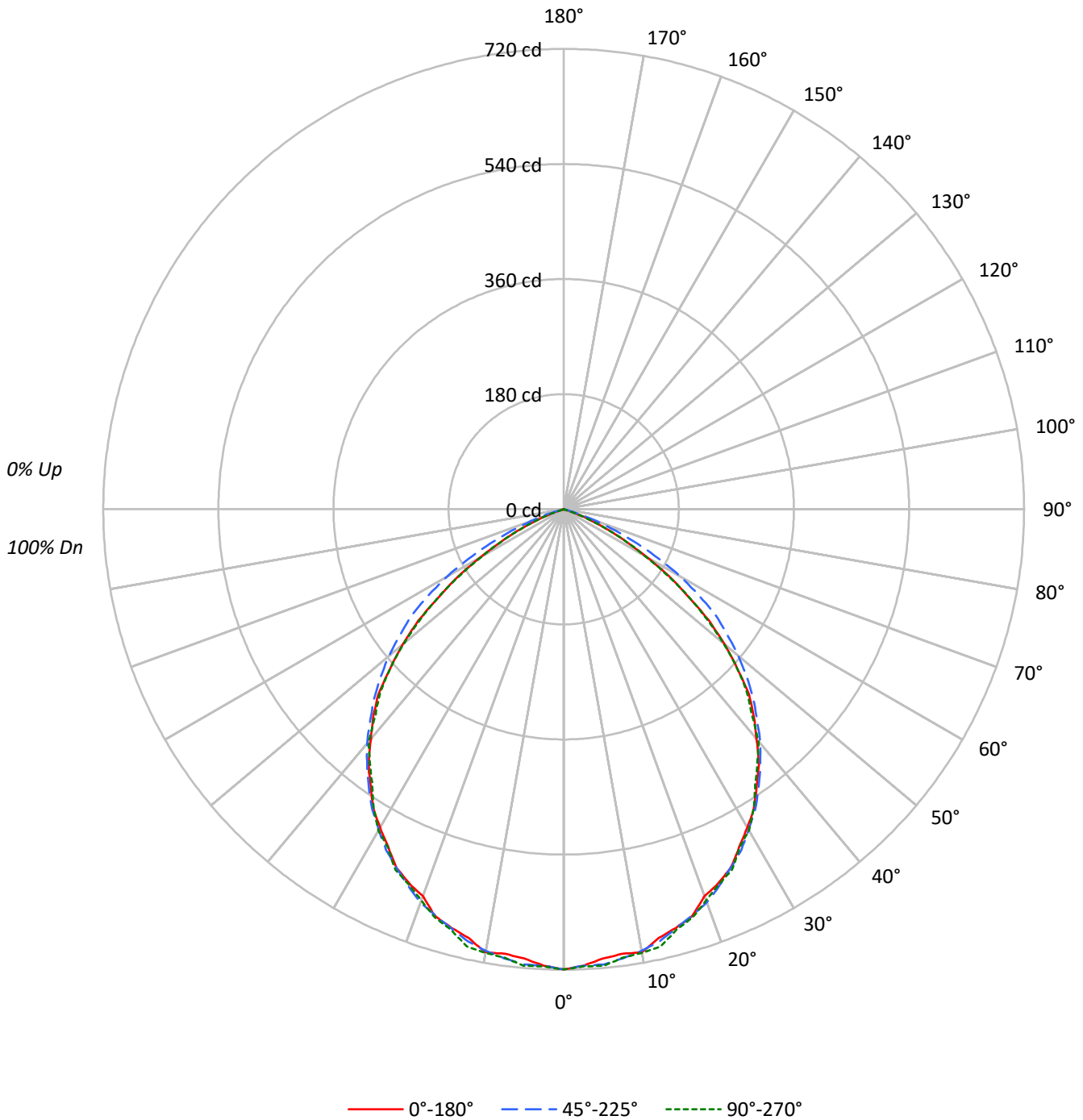
Lumens per Lamp: N/A
 Luminaire Lumens: 1537.0 lumens
 Efficiency: N/A
 Efficacy: 97.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 15.8
 Input Voltage (V):
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	GONIO 1 IN0055	4/22/2021	10/22/2021
Power Meter	XITRON 2801 IN0197	12/1/2020	12/1/2021
AC Power Source	CHROMA 61505 IN0196	12/1/2020	12/1/2021
DC Power Supply	AGILENT E3634A IN0198	11/30/2020	11/30/2021
Room Thermometer	ONSET IN0143	12/1/2020	12/1/2021

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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20			
RC	80				70				50				30				10		0	
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10	
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	111	108	104	101	109	105	102	100	101	99	96		97	95	94		94	92	91	89
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		85	82	79	77
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		77	73	69	67
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		69	65	61	59
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		63	58	54	52
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		57	52	48	46
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		53	47	43	41
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		49	43	39	37
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		45	39	35	34
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		42	36	32	31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	69424	69424	69424
5°	68304	69195	69389
10°	68898	68692	68996
15°	67687	67787	67997
20°	66117	67164	66846
25°	65827	65827	66263
30°	63997	64454	64565
35°	61994	62606	61511
40°	59087	60245	59729
45°	55920	57175	55360
50°	49251	53544	48936
55°	39886	49003	40054
60°	29178	40622	28599
65°	17740	28927	17260
70°	6912	15573	6630
75°	746	4213	746
80°	556	556	556
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	67.9	4.4
10°-20°	192.2	12.5
20°-30°	285.2	18.6
30°-40°	330.4	21.5
40°-50°	316.8	20.6
50°-60°	232.9	15.2
60°-70°	100.6	6.5
70°-80°	10.8	0.7
80°-90°	0.1	0.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	545.3	35.5
0°-40°	875.7	57.0
0°-60°	1425.4	92.7
0°-90°	1537.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1537.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	720	720	720	720	720	
5°	705	712	714	715	716	67
15°	678	682	679	680	681	191
25°	618	617	618	619	622	283
35°	526	529	532	530	522	329
45°	410	411	419	413	406	312
55°	237	262	291	261	238	213
65°	78	97	127	96	76	80
75°	2	3	11	2	2	6
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	719.5	719.5	719.5	719.5	719.5	719.5	719.5	719.5	719.5	719.5	719.5
2.5°	714.4	722.6	723.6	718.5	716.4	713.4	720.5	715.4	717.5	715.4	714.4
5°	705.2	714.4	715.4	715.4	713.4	712.3	715.4	714.4	713.4	711.3	714.4
7.5°	701.1	706.2	711.3	705.2	708.3	707.3	714.4	711.3	710.3	710.3	708.3
10°	703.2	702.1	706.2	700.1	702.1	700.1	706.2	706.2	704.2	702.1	701.1
12.5°	686.8	695.0	695.0	694.0	691.9	688.8	695.0	699.1	692.9	692.9	691.9
15°	677.6	679.7	680.7	680.7	679.7	681.7	684.7	680.7	681.7	676.6	678.6
17.5°	667.4	663.3	666.4	664.3	665.4	667.4	671.5	671.5	665.4	664.3	666.4
20°	643.9	656.1	657.2	651.0	652.0	652.0	659.2	653.1	657.2	652.0	654.1
22.5°	632.6	640.8	641.8	633.7	638.7	632.6	639.8	630.6	640.8	633.7	636.7
25°	618.3	617.3	620.4	616.3	617.3	617.3	622.4	618.3	621.4	617.3	618.3
27.5°	594.8	603.0	602.0	597.9	599.9	598.9	609.1	597.9	604.0	598.9	601.0
30°	574.4	581.5	579.5	575.4	575.4	572.3	583.6	580.5	579.5	579.5	578.5
32.5°	553.9	555.0	552.9	553.9	555.0	550.9	560.1	556.0	555.0	556.0	557.0
35°	526.3	526.3	528.4	525.3	529.4	529.4	537.6	532.5	531.5	528.4	531.5
37.5°	501.8	498.8	499.8	499.8	501.8	503.9	507.9	505.9	505.9	502.8	504.9
40°	469.1	467.1	470.1	470.1	473.2	473.2	477.3	475.2	478.3	478.3	478.3
42.5°	440.5	440.5	438.5	441.5	442.6	441.5	448.7	447.6	448.7	446.6	447.6
45°	409.8	409.8	407.8	406.8	411.9	410.9	419.0	415.9	420.0	418.0	419.0
47.5°	367.9	373.0	370.0	373.0	379.2	380.2	385.3	383.3	387.3	384.3	388.4
50°	328.1	328.1	331.1	335.2	341.3	342.4	348.5	352.6	354.7	355.7	356.7
52.5°	286.2	285.1	288.2	293.3	298.4	302.5	308.7	314.8	318.9	325.0	321.9
55°	237.1	239.1	242.2	248.4	256.5	261.6	266.7	274.9	282.1	285.1	291.3
57.5°	195.2	193.2	195.2	203.4	212.6	216.7	223.8	232.0	242.2	248.4	250.4
60°	151.2	152.3	154.3	161.5	168.6	174.8	177.8	191.1	200.3	206.5	210.5
62.5°	111.4	113.5	115.5	121.6	128.8	133.9	139.0	150.2	158.4	164.5	168.6
65°	77.7	78.7	81.8	84.8	92.0	97.1	101.2	110.4	118.6	123.7	126.7
67.5°	48.0	49.0	51.1	55.2	60.3	64.4	68.5	74.6	81.8	86.9	87.9
70°	24.5	25.6	26.6	29.6	33.7	35.8	38.8	44.0	49.0	53.1	55.2
72.5°	8.2	8.2	9.2	11.3	13.3	15.3	16.3	21.5	25.6	27.6	28.6
75°	2.0	2.0	2.0	2.0	2.0	3.1	3.1	6.1	8.2	10.2	11.3
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	719.5	719.5	719.5	719.5	719.5	719.5	719.5	719.5	719.5	719.5
2.5°	719.5	717.5	716.4	717.5	717.5	716.4	719.5	723.6	728.7	715.4
5°	718.5	716.4	718.5	712.3	715.4	713.4	717.5	716.4	720.5	716.4
7.5°	715.4	711.3	712.3	709.3	713.4	708.3	711.3	717.5	713.4	707.3
10°	705.2	703.2	710.3	700.1	698.0	702.1	710.3	704.2	702.1	704.2
12.5°	695.0	695.0	698.0	689.9	690.9	692.9	697.0	692.9	695.0	700.1
15°	683.7	681.7	686.8	680.7	679.7	677.6	681.7	681.7	683.7	680.7
17.5°	670.4	667.4	667.4	665.4	664.3	669.4	671.5	672.5	673.5	669.4
20°	654.1	653.1	656.1	653.1	654.1	655.1	655.1	653.1	662.3	651.0
22.5°	636.7	639.8	635.7	633.7	635.7	637.7	637.7	638.7	636.7	634.7
25°	619.4	621.4	622.4	616.3	619.4	616.3	623.4	624.4	620.4	622.4
27.5°	604.0	601.0	599.9	595.8	597.9	596.9	597.9	597.9	604.0	595.8
30°	580.5	577.4	578.5	575.4	576.4	575.4	576.4	576.4	580.5	579.5
32.5°	558.0	555.0	556.0	552.9	552.9	553.9	551.9	551.9	555.0	552.9
35°	536.5	529.4	530.4	529.4	530.4	526.3	526.3	525.3	527.4	522.2
37.5°	505.9	502.8	501.8	500.8	501.8	499.8	501.8	498.8	501.8	497.7
40°	478.3	476.2	477.3	471.2	471.2	472.2	470.1	469.1	470.1	474.2
42.5°	450.7	446.6	444.6	442.6	443.6	440.5	439.5	437.4	439.5	435.4
45°	418.0	418.0	417.0	411.9	412.9	412.9	408.8	404.7	405.7	405.7
47.5°	388.4	386.3	385.3	380.2	379.2	378.2	374.0	371.0	371.0	367.9
50°	355.7	353.6	350.6	345.4	343.4	337.3	334.2	330.1	326.0	326.0
52.5°	325.0	317.8	313.7	305.6	302.5	299.4	291.3	288.2	285.1	282.1
55°	288.2	282.1	273.9	264.7	260.6	255.5	247.3	241.2	237.1	238.1
57.5°	252.4	242.2	234.1	221.8	216.7	213.6	205.4	197.2	193.2	193.2
60°	208.5	200.3	190.1	178.8	174.8	169.7	159.4	154.3	151.2	148.2
62.5°	166.6	160.5	151.2	136.9	133.9	128.8	121.6	115.5	112.4	112.4
65°	124.7	118.6	110.4	100.2	96.1	92.0	85.9	79.7	76.6	75.6
67.5°	87.9	80.7	73.6	65.4	62.3	60.3	54.2	50.1	48.0	47.0
70°	53.1	49.0	44.0	37.8	34.7	32.7	28.6	25.6	24.5	23.5
72.5°	27.6	24.5	20.4	16.3	14.3	12.3	10.2	8.2	7.2	7.2
75°	10.2	8.2	5.1	3.1	2.0	2.0	2.0	2.0	2.0	2.0
77.5°	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)